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COMBINED SEWER SYSTEM COMPLIANCE INSPECTION AND ASSESSMENT OF NINE MINIMUM CONTROLS

CITY OF LANCASTER, PENNSYLVANIA

INSPECTION REPORT

Inspection Dates:
September 7–8, 2011

Report Date:
December 20, 2011

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EXECUTIVE SUMMARY

City of Lancaster, Pennsylvania
Assessment of Nine Minimum Controls for the Combined Sewer Collection and Conveyance System and Wastewater Treatment Facility

On September 7–8, 2011, an inspection team composed of staff from U.S. Environmental Protection Agency (EPA) Region 3, the Commonwealth of Pennsylvania Department of Environmental Protection (PADEP), and EPA contractor PG Environmental, LLC (hereinafter, collectively, EPA Inspection Team) conducted an inspection of the City of Lancaster (hereinafter, City) combined sewer collection and conveyance system and wastewater treatment plant (WWTP) located in Lancaster County, Pennsylvania. According to City representatives, the City provides wastewater conveyance and treatment services to a service population of about 120,000 people within the City itself and 13 tributary municipalities prior to discharge of effluent to the Conestoga River.

The primary purpose of the inspection was to evaluate the City's compliance with the Nine Minimum Controls (NMCs) for the combined sewer system (CSS) as described in EPA's 1994 National Combined Sewer Overflow (CSO) Control Policy and the EPA guidance document titled *Guidance for Nine Minimum Controls* (EPA 832-B-95-003), dated May 1995. As required by Part C.V.A of the City's National Pollutant Discharge Elimination System (NPDES) permit no. PA-0026743, issued August 1, 2010 (hereinafter, the Permit), the City must continue implementation of the NMCs and demonstrate system-wide compliance with them. A copy of the Permit is included as Attachment 1. In addition to the assessment of NMC implementation, the EPA Inspection Team sought to evaluate the bypassing procedures at the City's WWTP, the cause of recent WWTP effluent violations, and to evaluate the City's existing and planned green infrastructure projects.

The EPA Inspection Team held discussions with City staff, conducted field verification activities[1] in the collection system and at the WWTP, and obtained pertinent documentation regarding the City's implementation of the NMCs. It should be noted that the inspection took place during an extreme wet weather event (about 9.59 inches of rainfall[2] during September 5, 2011, through September 8, 2011), and the on-site inspection activity was slowed because of the weather while in the field. Table 1 includes a summary of weather information for this time period. Because of the extreme weather, the inspection field activities were limited; the EPA Inspection Team attempted to maximize the time spent with City staff to obtain documentation of program implementation while minimizing its impact on the City in its obligations to provide services for its citizens.

Table 1. Lancaster, PA Weather History[2] for September 5, 2011, through September 8, 2011

Day	Mean Temperature (F)	Precipitation (In)	Events
9/5/2011	70	1.52	Rain-Thunderstorm
9/6/2011	61	1.62	Rain
9/7/2011	66	4.31	Fog-Rain-Thunderstorm
9/8/2011	68	2.14	Rain-Thunderstorm
TOTAL PRECIPITATION = 9.59 inches			

[1] A summary of field activities is included as Exhibit 1.

[2] Weather history information for Lancaster, PA, was obtained from the Weather Underground website (http://www.wunderground.com/history). The website provided rainfall data gathered at the Lancaster Airport.

A State of Emergency was declared for the City at about 9:00 a.m. on September 8, 2011. The EPA Inspection Team concluded its activities and left the City's WWTP at approximately 9:45 a.m. that same day instead of remaining on site until the intended inspection conclusion in the late afternoon on September 8, 2011. The scope of the inspection was therefore limited due to both the extreme wet weather event and the abbreviation of the inspection activities. The EPA Inspection Team and City representatives agreed that a follow-up inspection may be necessary to gather additional information.

Based on information obtained and reviewed, the EPA Inspection Team noted several potential failures on the part of the City to adequately and effectively implement the NMCs for the CSS and WWTP. Table 2 summarizes the NMCs and inspection observations relating to the City's implementation of the NMCs. Descriptions and details regarding these issues and supporting documentation are provided in Section III of this inspection report. Several additional concerns were noted during the inspection; they are further developed in Section IV of the report.

In addition, the EPA Inspection Team has identified items that could be discussed with the City and information that could be requested to further develop the issues identified in this inspection report. This information is included in Section VI, Table 6

Table 2. Summary of Nine Minimum Controls and Inspection Observations

NMC	Inspection Observations
NMC # 1 – Proper operation and regular maintenance programs for the sewer system and CSO outfalls. See Section III.A of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	1. The City's standard operating procedures (SOPs) provided to the EPA Inspection Team did not identify specific guidance for several aspects of POTW operations. For example, the SOPs do not specifically reference WWTP process control variables (e.g., flow rates, oxygen system set points, number of units to be online) and/or the levels and units of those variables that require actions to ensure that systems and process units are maximized. 2. The City does not have formal training manuals or a comprehensive record of formal training for employees for collection system and CSO maintenance. 3. The City lacks a structured preventive maintenance program for cleaning the collection system. City staff stated that the City reacts to identified problems rather than attempting to prevent issues from occurring. 4. The City has limited documentation of maintenance or inspection activities conducted in the collection system. 5. The City lacks adequate SOPs and documentation for receiving and responding to sewer complaint calls. 6. The City has been working on developing a computerized maintenance management system (CMMS) and expects it to be implemented before the end of the 2011 calendar year. City staff explained that they anticipate using this tool to develop and implement a proactive collection system maintenance program.
NMC # 2 – Maximum use of the collection system for storage. See Section III.B of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	1. The failure of the City to proactively maintain and clean the collection and conveyance system of accumulated grit and sediment effectively reduces the ultimate storage capacity in the system. 2. According to the City's Wastewater Projects manager, a study conducted by the City in 1996 found that raising weir heights on its diversion structures would not provide additional storage in the collection system. The City uses a contractor, Pipe Data, to conduct its CCTV activities for satisfying its permit requirement to use closed-circuit television (CCTV) to inspect at least 6 miles of sewer line per year.

Table 2. Summary of Nine Minimum Controls and Inspection Observations

NMC	Inspection Observations
NMC # 3 – Review and modification of pretreatment requirements to ensure CSO impacts are minimized. See Section III.C of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	1. In July 2005, the City sent letters to its significant industrial users (SIUs) within the CSS area to request information regarding whether the SIUs could modify their flows during wet weather events. It was unclear to the EPA Inspection Team, however, whether the facilities had implemented measures to do so. 2. The City has experienced issues with cloth materials being discharged to the sewer system from the Lancaster County Prison, including impacts on the primary clarifiers in the City's North Treatment Train. Based on the observation of cloth materials on equipment in the North Pump Station, the sources of rags might be other areas of the City in addition to the prison. 3. The EPA Inspection Team asked whether the Lancaster Oil Company had been requested to modify its operational practices during wet weather events, and City staff stated that the facility was located in a separate sewer system area and therefore had not been asked or required to modify its operations during wet weather.
NMC # 4 – Maximization of flow to the publicly owned treatment works for treatment. See Section III.D of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	*Wastewater Treatment Facility* 1. The City has not scheduled maintenance activities for its primary clarifiers in the North Treatment Train in a way that would maximize flows to the plant for treatment. For example, the City took one of its two primary clarifiers offline during the extreme wet weather event that occurred during September 5–8, 2011. According to City staff, the primary clarifier had not been cleaned for about four years prior to this cleaning activity. 2. During wet weather, the City attempts to maintain an influent flow rate of 7 MGD to the South Treatment Train with automatic controls through its SCADA system. The City may direct additional influent flow to the North Treatment Train or to its WWTP bypass. *Collection System* 1. Due to a lack of a preventive maintenance program for its collection system, accumulation of sediment and debris in the collection system reduces capacity and affects the City's ability to maximize the conveyance of flows to the plant for treatment. 2. The City did not have adequate backup power for its North Pump Station and Grofftown Pump Station to provide its maximum pumping capacity in the event of a power loss. 3. The City is upgrading several of its pump stations to convey more flow to the WWTP.
NMC # 5 – Elimination of CSOs during dry weather. See Section III.E of the inspection report for an outline of specific NMC requirements.	1. During the inspection, City staff stated that a dry weather overflow (DWO) had occurred at the Engleside Diversion Structure in the past. The EPA Inspection Team was unable to obtain documentation of this DWO or other DWOs that have occurred at CSOs in the service area.
NMC # 6 – Control of solid and floatable materials in CSOs. See Section III.F of the inspection report for an outline of specific NMC requirements.	1. The City has installed floatables control devices on some of its catch basin inlets, and the City conducts street-sweeping activities on a regular basis. In addition, the Stevens Avenue pump station was equipped with a vortex swirl concentrator for removal of solids and floatables. These components of the City's program were not thoroughly evaluated during the inspection.

Table 2. Summary of Nine Minimum Controls and Inspection Observations

NMC	Inspection Observations
NMC # 7 – Pollution prevention programs to reduce contaminants in CSOs. See Section III.G of the inspection report for an outline of specific NMC requirements.	1. The City has installed floatables control devices on some of its catch basin inlets, and the City conducts street-sweeping activities on a regular basis. These components of the City's program were not thoroughly evaluated during the inspection.
NMC # 8 – Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. See Section III.H of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	1. The City has installed signs at most CSO locations; however, it did not appear to the EPA Inspection Team that the CSO signs had been placed in a way that provides sufficient information for a citizen to identify and report the occurrence of a DWO from the CSS. 2. During the inspection, it appeared to the EPA Inspection Team that the Stevens Avenue Pump Station CSO outfall did not have signage. City staff explained, however, that the CSO does have signage, but it was beneath the level of the flooded Conestoga River and faces toward the river. 3. The City did not describe other mechanisms for public notification regarding CSO impacts (e.g., notification signs posted after CSO discharge events or DWOs).
NMC # 9 – Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls. See Section III.I of the inspection report for an outline of specific NMC requirements and further discussion of the inspection observations.	1. City staff members conduct a visual inspection of the CSO diversion chambers daily during their daily pump station rounds. 2. The City has flow meters on its CSO outfalls to determine flow volumes and to help determine the occurrence of DWOs, though it appears that there may be a lack of precision in these flow measurements. In addition, two of the flow meters were not transmitting data at the time of the inspection due to construction activities. 3. The City has conducted flow studies for the collection system within the past five years. The EPA Inspection Team did not thoroughly discuss or evaluate the flow studies during the inspection.
Additional Observations See Section IV of the inspection report for further discussion of these inspection observations.	1. The City does not have a centralized mechanism for receiving, documenting, and tracking complaints from citizens. 2. Based on a review of insurance claims filed against the City for 2008 to 2011, there were five documented sewage backups into residences in the City during that time period. 3. The City uses two rain gages to monitor precipitation events. The rain gage at the Stevens Avenue Pump Station is owned and operated by the City, while the rain gage at the City's Conestoga Water Treatment Facility is owned and operated by the National Oceanic and Atmospheric Administration (NOAA). The City has developed a geographic information system (GIS) mapping database for its collection system.

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I. INTRODUCTION

On September 7–8, 2011, an inspection team composed of staff from U.S. Environmental Protection Agency (EPA) Region 3, the Commonwealth of Pennsylvania Department of Environmental Protection (PADEP), and EPA contractor PG Environmental, LLC (hereinafter, collectively, EPA Inspection Team) conducted an inspection of the City of Lancaster (hereinafter, City) combined sewer collection and conveyance system and wastewater treatment plant (WWTP) located in Lancaster County, Pennsylvania. According to City representatives, the City provides wastewater conveyance and treatment services to a service population of about 120,000 people within the City itself and 13 tributary municipalities prior to discharge of effluent to the Conestoga River.

The primary purpose of the inspection was to evaluate the City's compliance with the Nine Minimum Controls (NMCs) for the combined sewer system (CSS) as described in EPA's 1994 National Combined Sewer Overflow (CSO) Control Policy and EPA guidance document titled *Guidance for Nine Minimum Controls* (EPA 832-B-95-003), dated May 1995. As required by Part C.V.A of the City's National Pollutant Discharge Elimination System (NPDES) permit no. PA-0026743, issued August 1, 2010 (hereinafter, the Permit), the City must continue implementation of the NMCs and demonstrate system-wide compliance with them. A copy of the Permit is included as Attachment 1. In addition to the assessment of NMC implementation, the EPA Inspection Team sought to evaluate the bypassing procedures at the City's WWTP, the cause of recent WWTP effluent violations, and to evaluate its existing and planned green infrastructure projects.

The inspection included the following major activities:

- Discussions with representatives from the City regarding the operation of the sewer collection and conveyance system, the WWTP, permitted CSOs, and the industrial pretreatment program (IPP);
- A physical inspection of components of the City's WWTP;
- A physical inspection of three of the City's eight pump stations;
- A physical inspection of the City's six permitted CSOs and their associated control structures (see Exhibit 1 for a summary of field activities and Exhibit 2 for photograph documentation);
- Evaluation of the City's operational procedures for the WWTP and CSO regulators during wet weather events; and
- Verification of the City's adherence to the requirements for implementation of the NMCs through review of information obtained during and subsequent to the inspection.

The following personnel were involved in the inspection:

City of Lancaster Representatives:	Charlotte Katzenmeyer, Director of Public Works
	Bryan Harner, Wastewater Project Manager
	Mark Leonard, Wastewater Quality Supervisor
	Terry Dickel, Operations Supervisor
	Douglas Connell, Utility Manager
	Ed Mastromatyeo, Maintenance Supervisor
	Chris Brosey, Electrical/Mechanics Supervisor
	Phillip Brath, Consultant to City, ARRO Consulting
	Brian Marengo, Consultant to City, CH2MHill Engineering

Pennsylvania Department of Environmental Protection Representatives:	Shawn Arbaugh, Water Quality Specialist Supervisor Victor Landis, Water Quality Supervisor Barry Sweger, Water Quality Specialist
EPA Representatives:	Steve Maslowski, EPA Region 3 Michelle Price-Fay, EPA Region 3 Garth Connor, EPA Region 3
EPA Contractors:	Danny O'Connell, PG Environmental, LLC Bobby Jacobsen, PG Environmental, LLC

It should be noted that the inspection took place during an extreme wet weather event (about 9.59 inches of rainfall[3] during September 5, 2011, through September 8, 2011), and the on-site inspection activity was slowed due to the weather while in the field. Because of the extreme weather, field activities were limited; the EPA Inspection Team attempted to maximize its time with City staff to obtain documentation of program implementation while minimizing its impact on the City in its obligations to provide services for its citizens.

A State of Emergency was declared for the City at about 9:00 a.m. on September 8, 2011. The EPA Inspection Team concluded its activities and left the City's WWTP at approximately 9:45 a.m. that same day. The scope of the inspection was therefore limited due to both the extreme wet weather event and the abbreviation of the inspection activities. The EPA Inspection Team and City representatives agreed that a follow-up inspection may be necessary to gather additional information.

Section II of this report provides background information and an overview of the City's system. Section III provides descriptions and details of inspection observations, and supporting documentation regarding the City's NMC implementation. Section IV identifies additional concerns noted during the inspection.

In addition, the EPA Inspection Team has identified items and information that could be discussed with the City to further develop the issues identified in this inspection report. This information is included in Section VI, Table 6.

II. BACKGROUND INFORMATION

The City comprises an area of about 7.3 square miles with a population of about 59,300, according to the 2010 U.S. Census. According to City representatives, about 55 percent (about 4 square miles) of the City is served by the municipal separate storm sewer system (MS4), and about 45 percent of the City (about 3.3 square miles) is served by the CSS. According to the City's Wastewater Project Manager, Mr. Bryan Harner, about 85 percent of the City's population (about 50,000 people) lives within the CSS area and the remainder (about 9,000) lives within the MS4 area.

As stated earlier, the City's total service population is about 120,000. Thirteen tributary municipalities (within four distinct sewer authorities) convey their wastewater to the City for treatment and subsequent discharge to the Conestoga River. According to the City's Director of Public Works, Ms. Charlotte Katzenmeyer, each tributary municipality has an agreement (memorandum of understanding, or MOU) with the City that includes flow requirements. Each tributary municipality operates and maintains its own

[3] Weather history information for Lancaster, PA, was obtained from the Weather Underground website (http://www.wunderground.com/history). The website provided rainfall data gathered at the Lancaster Airport.

collection system, with the exception of the Suburban Lancaster Sewer Authority (SLSA), who has contracted with the City to operate and maintain the collection system on its behalf.

The tributary sewer authorities and municipalities include:

- Lancaster Area Sewer Authority (LASA)—(1) East Petersburg Borough, (2) East Hempfield Township, (3) Lancaster Township, (4) Manheim Township, (5) Manor Township, (6) Mountville Borough, and the (7) West Hempfield Township
- East Lampeter Sewer Authority (ELSA)—(8) East Lampeter Township
- Suburban Lancaster Sewer Authority (SLSA)—(9) West Lampeter Township, (10) Pequea Township, and the (11) Borough of Strasburg
- Leola Sewer Authority (LSA)—(12) Upper Leacock Township, and (13) portions of West Earl Township.

The City's WWTP consists of two distinct treatment trains, the North and South Treatment Trains. The City's Wastewater Project Manager, Mr. Bryan Harner, stated that the total design flow rate for the City's WWTP is 32.08 million gallons per day (MGD) and the average daily flow is about 17 MGD. He added that the limiting factor for the WWTP's treatment capacity is nitrogen removal, which limits the WWTP to a maximum discharge of 26 MGD. The nitrogen removal capacity of the WWTP was not discussed in detail as a component of this inspection because of the format modification made in response to the extreme weather conditions.

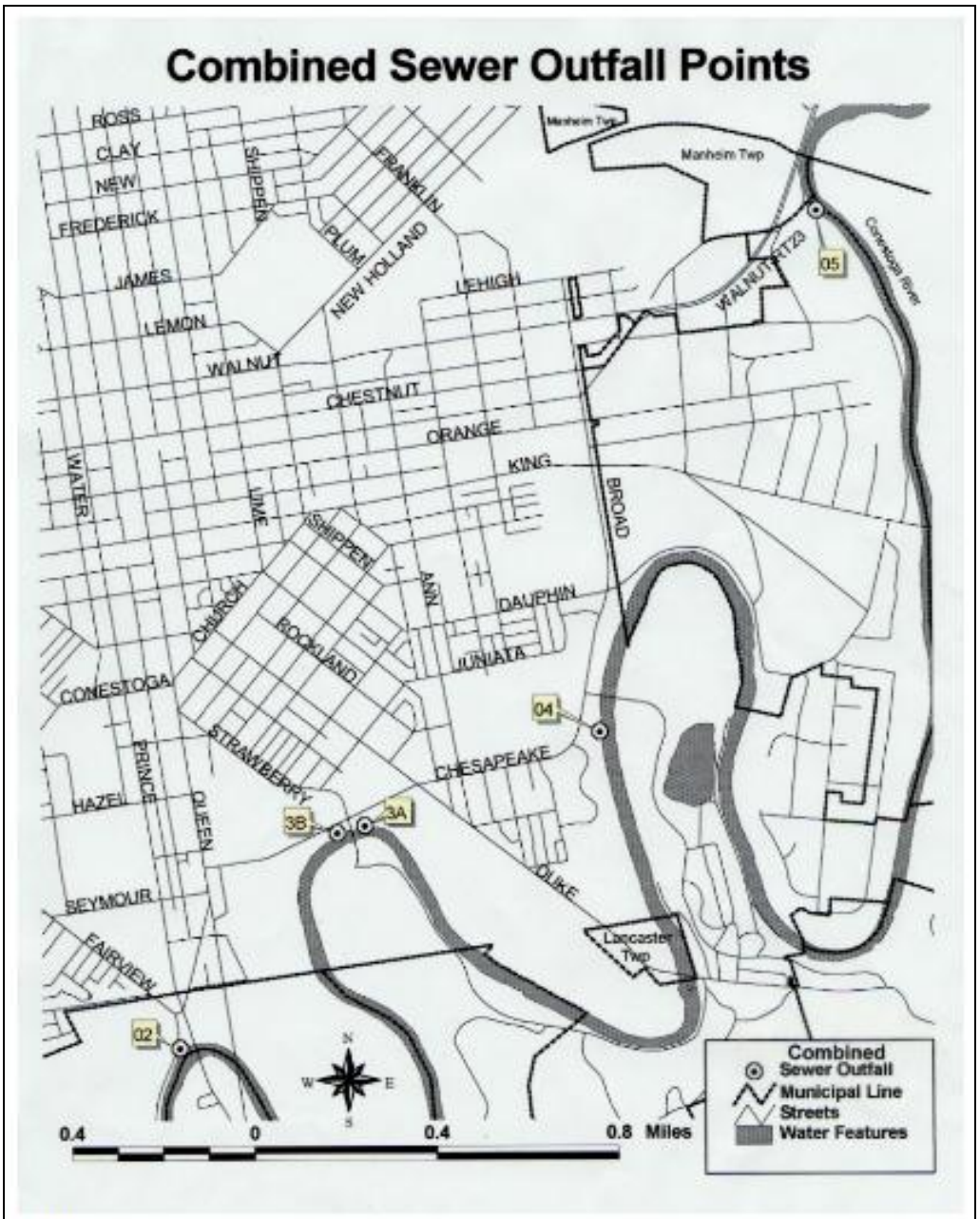
The City's Permit authorizes discharges from the WWTP, as well as five diversion chambers in the collection system (i.e., CSOs 002–006) and a bypass of secondary treatment from the WWTP's South Treatment Train (i.e., CSO 100). The permitted bypass from the WWTP allows the City to discharge disinfected primary effluent from the South Treatment Train to the Conestoga River. The actual outfall location for CSO 100 is the same as the outfall for the WWTP, outfall 001. Partially treated bypass wastewater flows from the WWTP and then combines with the fully treated wastewater prior to reaching the Conestoga River. Figure 1, on the following page, is a map of the City which displays the location of the CSOs.

The City's sewer system consists of about 88 miles of combined sewer pipe and 60 miles of separate sanitary sewer pipe. The City owns, operates, and maintains eight pump stations—Engleside (Main Pump Station), North, Stevens Avenue, Susquehanna, Conestoga Gardens, Maple Grove, Grofftown, and Sunnyside—and has been contracted to operate and maintain 13 pump stations owned by the SLSA. The City's pump stations are connected to its supervisory control and data acquisition (SCADA) system and can be monitored remotely from the WWTP.

The City has identified four distinct "sewer districts" within the combined sewer area—Engleside (1.6 square miles), North (1.4 square miles), Stevens Avenue (0.2 square mile), and Susquehanna (0.1 square mile). According to the City Wastewater Project Manager, the North and Engleside sewer districts account for about 95 percent of CSO volume discharged from the City's system.

According to the City's Wastewater Quality Supervisor, the City is an industrial pretreatment control authority and has 18 significant industrial users (SIUs) within its service area. The City claims ownership and responsibility of sewer pipes starting at the sewer main; it does not claim responsibility for any part of sewer laterals from private buildings or establishments.

Figure 1. City Map Displaying CSO Locations along the Conestoga River[4]



Key:
02: Engleside
3A: Susquehanna
3B: Strawberry
04: Stevens Avenue
05: Clay Street

[4] Map obtained from the City's website (http://www.co.lancaster.pa.us/lancastercity/cwp/view.asp?a=1189&q=616213). Note that the CSO numbers identified in the map "Key" do not correspond directly with the CSO numbers assigned in the Permit. The Permit provides the following naming convention for the CSOs: CSO 002 Engleside; CSO 003 Susquehanna; CSO 004 Stevens Avenue; CSO 005 Clay Street; and CSO 006 Strawberry.

III. ASSESSMENT OF NINE MINIMUM CONTROL IMPLEMENTATION

Part C.V.A of the City's Permit (NPDES Permit No. PA-0026743) requires the following:

> Upon issuance of this permit, the permittee shall continue the implementation of the NMCs, demonstrate system wide compliance of the NMCs and submit discharge monitoring reports and annual reports to the Department with appropriate documentation. The NMC documentation report is incorporated in this permit.
>
> The Department will use guidance document EPA 832-B-95-003 entitled "Guidance For Nine Minimum Controls," dated May 1995. The Department will use the EPA guidance document and specific comments provided during review of the NMC documentation reports to determine continued compliance with the CSO permit requirements.

Furthermore, Part C.V.B of the City's Permit requires that the City "continue to implement its approved LTCP [Long-Term Control Plan]" and provides several specific requirements pertaining to the implementation of the NMCs. These requirements will be referenced as appropriate throughout the inspection report.

Based on information obtained and reviewed, the EPA Inspection Team noted several potential failures of the City to adequately and effectively implement the NMCs for the CSS and WWTP. The remainder of this report assesses the implementation of each NMC in an outline format. The outline presents the requirements of each NMC as provided in EPA's *Guidance for Nine Minimum Controls*, as well as the EPA Inspection Team's observations and supporting documentation.

In addition, the EPA Inspection Team has identified items that could be discussed with the City and information that could be requested to further develop the issues identified in this inspection report. This information is included in Section VI, Table 6.

A. NMC #1: Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The first minimum control, proper operation and regular maintenance of the CSS and CSO outfalls, should consist of a program that clearly establishes operation, maintenance, and inspection procedures to ensure that a CSS and treatment facility will function in a way to maximize treatment of combined sewage and still comply with NPDES permit limitations.

According to EPA's guidance document, a proper operation and maintenance (O&M) program generally should include the following:

- The organization and people responsible for various aspects of the O&M program;
- Resources for O&M (i.e., people and dollars) allocated to O&M activities;
- Planning and budgeting procedures for O&M of the CSS and treatment facilities;
- List of the facilities (e.g., tide gates, overflow weirs) critical to the performance of the CSS;
- Written procedures and schedules for routine, periodic maintenance of major items of equipment and CSO diversion facilities, as well as written procedures to ensure that regular maintenance is provided;
- A process for periodic inspections of the facilities listed previously;

- Written procedures, including procurement procedures, if applicable, for responding to emergency situations;
- Policies and procedures for training O&M personnel; and
- A process for the periodic review and revision of the O&M program.

Inspection Observations

1) The City provided a standard operating procedure (SOP) package (see Attachment 2) that summarizes general operations within the publicly owned treatment works (POTW; i.e., the WWTP and the collection system assets). The nine-page SOP package summarizes issues associated with the application of the SOPs for pumping stations; wet weather flows; return sludge; testing, sampling and recording; and safety. Within this document is the following qualification statement: "The material contained in this manual is not all-inclusive. The referenced material is to be used as a guide only." Subsequent to the inspection, the EPA Inspection Team reviewed the SOPs and made the following observations.
    a. The SOPs do not specifically reference process control variables (e.g., flow rates, oxygen system set points, number of units to be online) and/or the levels and units of those variables that require actions to ensure that systems and process units are maximized. It is unclear to the EPA Inspection Team whether there is additional process control documentation or SOPs to ensure that the POTW is being properly operated at all times and to ensure implementation of the NMC requirements.
    b. On page 4, paragraph 2, of the SOP package, the document does not specify information required to be documented when a citizen calls in to report a complaint. Nor does it reference a standardized call form or work order that needs to be completed in response to the call.
    c. On page 6, paragraph 6, of the SOP package, the document states, "Each rain event us [sic] unique in nature. Intensity duration and previous wet weather all play a part in how we must operate the plant. Flows dictate the amount of return, waste, D.O. [dissolved oxygen], and sampling. Chlorine and de-chlor doses are also affected by fluctuating flows to the plant." The SOP package does not specify what information should be referenced to determine the appropriate amount of return, waste, dissolved oxygen, sampling, and chlorine/dechlorination doses. There might be secondary documents that provide this process control information, but they are not referenced in the SOP and were not provided to the EPA Inspection Team.
    d. On page 7 of the SOP package, the document does not provide process control ranges to be expected for sludge or solids. It does not provide the optimal range for general dry weather flows, or settings or ranges for wet weather events. The SOP states only that the sludge "blankets need to be taken more frequently during periods of unstable flow conditions." It is unclear to the EPA Inspection Team who determines the frequencies, how the information is interpreted, or what process control modifications are implemented in response to the blanket levels.
    e. The SOP package does not contain operational protocols concerning issues with solids in the North Treatment Train, North Pump Station, Stevens Avenue Pump Station, and Engleside Pump Station, associated with the lack of grit removal capability. The solids from the North and Stevens Avenue pump stations may directly impact the ability of the North Treatment Train to perform efficiently.

2) The City does not have formal training manuals or comprehensive records of formal training for employees for collection system and CSO maintenance. As explained by several staff members, training is generally provided on the job by other City employees.

3) The City lacks a structured preventive maintenance program for cleaning the collection system. City staff stated that the City reacts to identified problems rather than attempting to prevent issues from occurring. The City's lack of preventive maintenance of the collection system impacts the City's ability to implement several of the NMCs (e.g., storage in the collection system and conveyance of flows to plant). It should be noted that as stated in EPA's *Guidance for Nine Minimum Controls*, "the program should focus on preventive maintenance to avoid failures during critical times, such as a period of heavy rainfall."

    a. The City reacts to identified problems rather than attempting to prevent issues from occurring.

    b. The City has a "hotspot" list of areas that are cleaned on a quarterly basis, more frequently than other areas; however, there is no defined strategy for conducting and tracking overall proactive system maintenance.

    c. The City's Maintenance Supervisor stated that the City cleans about 3,000 feet of sewer line per month. It was unclear to the EPA Inspection Team whether this footage represents unique lengths of sewer line or includes lines that have been cleaned multiple times; therefore, the EPA Inspection Team cannot calculate an accurate estimate of the City's cleaning cycle for its collection system (e.g., 10-year cycle).

    d. The City established "performance measures" for its Bureau of Wastewater Operations in 2008. With regard to sewer line cleaning, an example of the performance measures provided by the City states that the goal is to clean "1–2%" of the system annually. This represents a cleaning cycle of 50 to 100 years. The EPA Inspection Team did not obtain enough information to be able to confirm whether the City has been accomplishing its established sewer line cleaning goals.

    e. The grit removal system at the North Pump Station was out of service, and a heavy accumulation of rags and debris was observed within the pump station. The lack of grit removal at this location means the City's North Treatment Train primary clarifiers must function as grit chambers as well as clarifiers because the North Treatment Train does not have a grit removal system.

4) The City has limited documentation of maintenance or inspection activities conducted in the collection system. The City does not have written SOPs for conducting or documenting maintenance or inspection activities in the collection system. The following is a summary of the documentation observed by the EPA Inspection Team while on-site.

    a. Inlet Cleaning Logs

        i. Documentation consists of date, location, and identification of maintenance crew.

            A. The information available during the inspection represented partial documentation for the years 2005, 2006, and 2011 (see Attachment 3). It is unclear to the EPA Inspection Team whether additional documentation exists.

        ii. Volume of debris removed is not documented.

        iii. Type of debris removed is not identified.

iv. Documentation does not include information regarding the frequency of cleaning or suggested modification to cleaning frequency.

v. Does not document condition of the structural condition of the inlet.

b. Collection System Line Jetting/Cleaning

i. Documentation consists of date, location, line size, linear feet cleaned, and identification of maintenance crew.

A. Attachment 4 provides an example of the documentation structure used by the City.

B. Attachment 5 provides an example of a completed "Hot Spots" line maintenance summary sheet.

ii. Volume of debris removed is not documented.

A. Attachment 4 provides an example of the information documented by City staff in the field. The volume of debris or a recommendation for the modification of the cleaning frequency for that particular asset is not included in the City's documentation.

iii. Type of debris removed is not identified.

iv. Documentation does not include information regarding the frequency of cleaning or suggested modification to cleaning frequency.

A. For example, the 100 block of Race Avenue required repeat servicing on May 10, 11, and 12, 2011 (see Attachment 4); however, the documentation provided to the EPA Inspection Team did not include information regarding possible modification to the cleaning frequency for that particular asset. Problem areas should be properly identified and evaluated for the appropriate operational and maintenance needs and possible capital improvements if required.

v. Documentation does not identify the structural condition of the sewer line.

5) The City lacks adequate SOPs and documentation for receiving and responding to sewer complaint calls. Sewer complaint calls and basement backup issues are further discussed in Section IV of the report.

a. The City does not maintain a record of sewer complaint calls that are received during the day.

b. The City does not maintain clear documentation of the resolution of issues associated with its sewer complaint calls. Without this information, it is not possible to assess key variables (e.g., areas needing increased preventive maintenance; conditions that might lead to asset failure, such as line collapse; conditions under which capacity might be limited due to debris accumulation, staffing needs, equipment needs) to implement a proper O&M program, including budget and capital improvements, for the collection system.

c. The City's *Service Calls "Collections" Sheet* is used to document work performed in response to citizen calls (see Attachment 6). Prior to February 22, 2011, the City's documentation practices were informal and consisted of rough notes on a blank sheet summarizing the activities for a particular day.

6) The City has been working on developing a computerized maintenance management system (CMMS) and expects it to be implemented before the end of the 2011 calendar year. City staff explained that they anticipate using this tool to develop and implement a proactive collection system maintenance program.

B. NMC #2: Maximum Use of the Collection System for Storage

As stated in EPA's *Guidance for Nine Minimum Controls*:

> As the second minimum control, maximum use of the collection system for storage means making relatively simple modifications to the CSS to enable the system itself to store wet weather flows until downstream sewers and treatment facilities can handle them.

EPA's guidance document provides several examples of simple control measures that can be implemented to increase the storage capacity of a CSS. The measures include the following:

- Inspect collection system to identify deficiencies that restrict storage capacity of the system (e.g., sediment buildup in sewer lines, undersized pipe).
- Maintain and repair tide gates to eliminate leaking tide gates.
- Adjust regulator settings to maximize weir heights for increased storage within the sewer system.
- Retard inflows by using special gratings or hydrobrakes in catch basins to restrict the rate at which surface runoff is permitted into the system.
- Use localized upstream detention for short-term storage (e.g., upstream parking area usage for temporary water storage).
- Upgrade/adjust pump operations at interceptor lift stations to increase pump rates if downstream sections have available hydraulic capacity.
- Remove obstructions to flows (e.g., sediment accumulation or other debris).

Inspection Observations

1) The City lacks a structured preventive maintenance program for cleaning the collection system. City staff stated that the City reacts to identified problems rather than attempting to prevent issues from occurring. The failure of the City to adequately maintain and clean the collection and conveyance system of accumulated grit and sediment effectively reduces the ultimate storage capacity in the system.
    a. As stated earlier, the City's lack of preventive maintenance of the collection system impacts the City's ability to implement several of the NMCs (e.g., proper operation and regular maintenance programs for the sewer system and the CSOs and conveyance of flows to plant). Additional information regarding the City's maintenance of the collection system is contained in Section III.A above.
2) According to the City's Wastewater Projects manager, the City conducted a static weir height study in its 1996 Nine Minimum Controls Study and found that the weirs had been set at or near the maximum height and that raising weir heights would not provide additional storage.
3) The City has a permit requirement to use closed-circuit television (CCTV) to inspect at least 6 miles of sewer line per year. Accordingly, the City uses a contractor, Pipe Data, to conduct its CCTV activities for satisfying this permit requirement. According to City staff, these contracted activities are documented on the associated purchase orders. The EPA Inspection Team did not obtain copies of purchase orders for CCTV activity to verify whether the City has been meeting its required six miles of sewer line CCTV inspection per year.

C. NMC #3: Review and Modification of Pretreatment Requirements to Assure CSO Impacts are Minimized

As stated in EPA's *Guidance for Nine Minimum Controls*:

> Under the third minimum control, the municipality should determine whether nondomestic sources are contributing to CSO impacts and, if so, investigate ways to control them. The objective of this control is to minimize the impacts of discharges into CSSs from nondomestic sources (i.e., industrial and commercial sources, such as restaurants and gas stations) during wet weather events, and to minimize CSO occurrences by modifying inspection, reporting, and oversight procedures within the approved pretreatment program.

EPA's guidance document provides the following steps for municipalities to implement the third NMC:

- Inventory nondomestic discharges to the CSS, including the identification of discharge locations on a map of the system.
- Assess the impact of nondomestic discharges on the CSOs and receiving waters.
- Assess the value and feasibility of modifications to the existing pretreatment program's approach of regulating nondomestic users to reduce the impact on CSO discharges.

Inspection Observations

1) In July 2005, the City sent letters to its significant industrial users (SIUs) within the CSS area to request information regarding whether the SIUs could modify their flows during wet weather events. Attachment 7 is an example of the template letter sent to the SIUs, and Attachment 8 contains copies of the SIU response letters.
    a. Two of the SIUs (L3 Communications and Lancaster Metals Science Corporation) responded that they could potentially reduce the amount of flow discharged during wet weather events. It was unclear to the EPA Inspection Team, however, whether the facilities had implemented measures to do so.
2) The City has experienced issues with cloth materials being discharged to the sewer system from the Lancaster County Prison. Specifically, the primary clarifiers in the North Train at the WWTP have accumulated a significant amount of debris, which has caused the City to take them offline recently and has resulted in reduced wastewater treatment capacity at the WWTP. Because of the modification of the field inspection schedule, the EPA Inspection Team was unable to evaluate the specific operational impacts of the north primary clarifiers being offline for maintenance (e.g., maximization of flows through the North Treatment Train).
3) Based on the observation of cloth materials on equipment in the North Pump Station, the sources of rags might be other areas of the City in addition to the prison. Especially because the grit removal system at the North Pump Station is out of service and the North Treatment Train does not have a grit removal component, the City's IPP staff should be working for reduction of debris discharges at the source.
4) The EPA Inspection Team asked whether the Lancaster Oil Company had been requested to modify its operational practices during wet weather events, and City staff stated that the facility was located in a separate sewer system area and therefore had not been asked or required to modify its operations during wet weather. Based on the description of the collection systems (combined and separate) provided during the inspection process, the industrial flows from the separate sewer system combine with flows in the CSS prior to reaching the WWTP; therefore, there is a potential for the flows to be released through CSOs without treatment prior to reaching the WWTP. While driving past the Lancaster Oil

Company facility, the EPA Inspection Team observed that there were tanker trailers in the facility's parking lot. Operations involving tanker trailers and batch treatment might be capable of storing wastes until after wet weather periods to minimize impacts on the WWTP and the CSO effluent during wet weather events.

D. NMC #4: Maximization of Flow to the Publicly Owned Treatment Works for Treatment

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The fourth minimum control, maximizing flow to the POTW, entails simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant. The objective of this minimum control is to reduce the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters.

EPA's guidance document provides the following measures for municipalities to implement the fourth NMC:

- Determine the capacity of the major interceptor(s) and pump station(s) and ensure that full capacity is available.
- Analyze records comparing flows processed at the WWTP during wet and dry weather to determine relationships between performance and flow.
- Compare current flows with the design capacity of the overall facility, as well as the capacity of individual process units, and identify available excess capacity.
- Determine the ability of the facility to operate acceptably at incremental increases in wet weather flows and estimate impacts on compliance.
- Determine whether any inoperative or unused treatment facilities on the POTW site can be used to store or treat wet weather flows.
- Develop cost estimates for any planned physical modifications and any additional O&M costs at the treatment plant due to the increased wet weather flow.

Inspection Observations

Wastewater Treatment Plant

1) During the inspection, the City was in the process of emptying one of its two primary clarifiers in the North Treatment Train of the WWTP due to significant grit and debris accumulation on the bottom of the clarifier. As stated above, the North Pump Station's grit removal system was out of service and the North Treatment Train does not include grit removal equipment. Therefore, preventive maintenance for the primary clarifiers in the North Treatment Train should be conducted at an increased frequency due to the demand on the clarifiers that the grit, rags, and debris create.
    a. Failure to properly remove grit early in the treatment process has been documented in the wastewater industry to expose primary solids removal equipment and pumps to excessive wear from abrasive grit. This wear can result in increased downtime of wastewater treatment equipment, reducing the equipment's availability to perform treatment.
2) The City has not scheduled maintenance activities for its primary clarifiers in the North Treatment Train in a way that would maximize flows to the plant for treatment. For example, the City took one of its two primary clarifiers offline during the extreme wet weather event that occurred during September 5–8, 2011. According to City staff, the primary clarifier had

not been cleaned for about four years prior to this cleaning activity. Based on discussions with City staff, there appears to be a lack of preventive maintenance activities and documentation concerning the performance of the primary clarifiers

a. A review of the available preventive maintenance (PM) documentation for the North Treatment Train primary clarifiers documented that on July 31, 2011, the "scum beach" for primary clarifier no. 5 was clogged and needed to be cleaned out (see Attachment 9). The follow-up actions immediately taken by the City in response to this issue were unclear to the EPA Inspection Team.

3) During wet weather, the City attempts to maintain an influent flow rate of 7 MGD to the South Treatment Train. The City puts the gate control structure in automatic mode for control by the SCADA system to achieve this during wet weather. According to City staff, the City can pump flow from the downstream end of the primary clarifiers in the South Treatment Train to the primary clarifiers in the North Treatment Train at a maximum flow rate of 7 MGD.

Collection System

1) As described above, the City does not have a preventive maintenance program for its collection system, and City staff have observed and reported significant accumulation of grit, sediment, and debris in that system. Therefore, it might not be possible to convey sewage as efficiently as possible. The accumulation of sediment and debris in the collection system reduces capacity and affects the City's ability to maximize the conveyance of flows to the plant for treatment.
2) The backup power generator for the City's North Pump Station also provides power to the nearby Grofftown Pump Station; however, the backup generator does not provide enough power to run all the pumps at both pump stations simultaneously and would therefore not provide the City with its maximum pumping capacity.
3) The City is upgrading several of its pump stations to convey more flow to the WWTP. According to City staff, the sewer line interceptors can accept more flow for transport to the WWTP for treatment. The City had a private contractor, ADS, conduct an evaluation of interceptor capacities for the pump station upgrades from 2008 to 2010.
    a. The Stevens Avenue Pump Station is under construction to increase its maximum flow capacity from a maximum of 8.9 MGD to 11.9 MGD by the end of 2013.
    b. The North Pump Station is under design to increase its capacity from a maximum of 26 MGD to 43 MGD by the end of 2013.

E. NMC #5: Elimination of CSOs during Dry Weather

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The fifth minimum control, elimination of CSOs during dry weather, includes any measures taken to ensure that the CSS does not overflow during dry weather flow conditions. Since the NPDES program prohibits dry weather overflows (DWOs), the requirement for DWO elimination is enforceable independent of any programs for the control of CSOs.

EPA's guidance document states that "a visual inspection program of sufficient scope and frequency is needed to provide reasonable assurance that any occurrence will be detected." The document also provides several examples of actions to alleviate DWOs caused by operational issues. The examples include adjustment of regulator settings, maintenance and repair of regulators, maintenance of tide gates, interceptor cleaning, and sewer repair.

Part C.V of the City's Permit states that "CSOs are allowed to discharge only in compliance with this permit when flows in the combined sewer systems *exceed the design capacity* [emphasis added] of the conveyance or treatment capacities of the system during or immediately after wet weather periods. Overflows that occur without an accompanying precipitation event or snowmelt are termed 'dry weather overflows' and are prohibited."

Inspection Observations

1) During the inspection, City staff stated that a DWO had occurred at the Engleside Diversion Structure in the past. The EPA Inspection Team was unable to obtain documentation of this DWO or other DWOs that have occurred at CSOs in the service area.
2) The EPA Inspection Team did not evaluate whether the City had developed inspection procedures for detecting and eliminating DWOs.

F. NMC #6: Control of Solid and Floatable Materials in CSOs

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The sixth minimum control is intended to reduce, if not eliminate, visible floatables and solids using relatively simple measures. Simple devices including baffles, screens, and racks can be used to remove coarse solids and floatables from combined sewage, and devices such as booms and skimmer vessels can help remove floatables from the surface of the receiving water body.

EPA's guidance document provides schematics and a more thorough description of possible modifications and devices that can be used to control and remove solids and floatables from combined sewage.

Inspection Observations

1) The City has installed floatables control devices on some of its catch basin inlets, and the City conducts street-sweeping activities on a regular basis. In addition, the Stevens Avenue pump station was equipped with a vortex swirl concentrator for removal of solids and floatables. These components of the City's program were not thoroughly evaluated during the inspection.

G. NMC #7: Pollution Prevention

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The seventh minimum control, pollution prevention, is intended to keep contaminants from entering the CSS and thus receiving waters via CSOs…The objective of this minimum control is to reduce to the greatest extent possible the amount of contaminants that enter the CSS.

EPA's guidance document provides information regarding measures such as street cleaning, public education, solid waste collection, product ban/substitution, hazardous waste collection, and recycling as actions that can be taken to prevent contaminants from entering the CSS.

Inspection Observations

1) As stated earlier, the City has installed floatables control devices on some of its catch basin inlets, and the City conducts street-sweeping activities on a regular basis. These components of the City's program were not thoroughly evaluated during the inspection.

H. NMC #8: Public Notification to Ensure that the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

As stated in EPA's *Guidance for Nine Minimum Controls:*

> The intent of the eighth minimum control, public notification, is to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities (e.g., swimming and shellfish harvesting) curtailed as a result of CSOs.

EPA's guidance document provides the following measures for notifying the public about CSO events:

- Posting at affected use areas
- Posting at selected public places
- Posting at CSO outfalls
- Notices in newspapers or on radio and TV news programs
- Letter notification to affected residents
- Telephone hot line for interested citizen calls.

Inspection Observations

1) The City has installed signs at most CSO locations; however, it did not appear to the EPA Inspection Team that the CSO signs had been placed in a way that provides sufficient information for a citizen to identify and report the occurrence of a DWO from the CSS.
    a. For example, City staff stated that four of the five CSO outfalls also serve as MS4 outfalls because the City's MS4 is connected to the CSO outfall pipe prior to the actual discharge point. Therefore, it might not be clear whether a discharge during dry weather is associated with the CSS or with the MS4. The signs posted at the Chesapeake and Strawberry CSOs (003 and 006, respectively) state: "In case of dry weather discharge, please notify the City Waste Water Bureau @ 717-293-5533."
2) During the inspection, it appeared to the EPA Inspection Team that the Stevens Avenue Pump Station CSO outfall did not have signage. City staff explained, however, that the CSO does have signage, but it was beneath the level of the flooded Conestoga River and faces toward the river.
3) The City did not describe other mechanisms for public notification regarding CSO impacts (e.g., notification signs posted after CSO discharge events or DWOs). The EPA Inspection Team conducted a brief review of the City's website[5] and observed that the website includes some background information about the CSS and CSOs; however, it was unclear to the EPA Inspection Team whether the City uses the website to post notices regarding CSO impacts.

[5] http://www.co.lancaster.pa.us/lancastercity/cwp/view.asp?a=1189&q=616213

I. NMC #9: Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls

As stated in EPA's *Guidance for Nine Minimum Controls*:

> The ninth minimum control involves visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs. This minimum control is an initial characterization of the CSS to collect and document information on overflow occurrences and known water quality problems and incidents, such as beach or shellfish bed closures, that reflect use impairments caused by CSOs.

EPA's guidance document states that a municipality should characterize its system (e.g., obtain maps of the CSS and locations of CSO outfalls), record the occurrence of overflows (via visual inspection, inspection aids, or automatic measurement), and record and summarize information on water quality or usage of the CSO receiving waters.

Inspection Observations

1) City staff members conduct a visual inspection of the CSO diversion chambers daily during their daily pump station rounds.
2) The City has flow meters on its CSO outfalls to determine flow volumes and to help determine the occurrence of DWOs.
    a. Based on discussions with City staff, there appears to be lack of precision in these flow measurements. The EPA Inspection Team did not obtain data or information to evaluate the precision of the flow measurements.
3) At the time of the inspection, two of the flow meters at the CSO locations were not transmitting information to the City's SCADA system because of construction at the pump stations near the CSO locations.
4) The City has conducted flow studies for the collection system within the past five years. The EPA Inspection Team did not thoroughly discuss or evaluate the flow studies during the inspection.

IV. ADDITIONAL OBSERVATIONS

Several additional observations were noted by the EPA Inspection Team, as discussed below.

A. Documentation of Sewer Complaint Calls

The City does not have a centralized mechanism for receiving, documenting, and tracking complaints from citizens. City staff explained that complaints can be received in several places (e.g., WWTP, City Hall) and that the complaints are not necessarily documented. The City does not have written SOPs for handling citizen complaint calls, and City staff did not describe a structured approach to how specific issues should be described, documented, addressed, or forwarded to the appropriate City department.

B. Wastewater Backups to Private Buildings

Based on a review of insurance claims filed against the City for 2008 to 2011, there were five documented sewage backups into residences in the City during that time period. The Permit authorizes discharges only from outfall 001 from the WWTP and the designated CSO locations; therefore, discharges from other components of the system are prohibited. Based on the documentation available, it

was unclear to the EPA Inspection Team whether the sewage backups were reported to PADEP as unpermitted releases from the collection system.

During the inspection, the EPA Inspection Team requested insurance claim information related to basement backups in the City. The City provided the EPA Inspection Team with a summary of all the insurance claims against the City for 2008 to 2011. The hard copy database provided by the City included 657 insurance claim entries for all issues filed against the City, which the EPA Inspection Team reviewed after the inspection. For the review, the EPA Inspection Team assumed that if the insurance claim was not paid out by the insurance company, then the City was not liable for the damages and ultimately the City's system had not caused the sewage backup.

A review of the data revealed that there were 20 insurance claims filed for backups of sewage into citizens' homes during January 2008 to September 2011; however, only five of those claims were paid by the insurance company (Travelers Insurance). Releases of sewage into homes constitute unpermitted releases from the sewer system, and should be reported to PADEP as such.

Table 3 summarizes insurance claims filed with the City and paid by its insurance company for backups of sewage into citizens' homes during January 2008 to September 2011.

Table 3. Summary of Insurance Claims for Sewage Backups to Private Buildings for which the City Claimed Responsibility

Date of Claim	Claim Number	Street Address	Description of Claim[a]
6/30/2011	EJN9757	640 Ocean Avenue	Sewer line clogged with mud backed up flooding basement. Ins pd.
6/14/2010	A3V5938	735 State Street	Basement damage due to sewer line backup. Travelers pd $1,093.79. Pd $1,093.79 to Travelers.
5/31/2010	A3V5163	735 State Street	Heavy rain caused a sewer line to clog. Travelers pd $3,192.04, city reimbursed Travelers.
10/3/2009	A6N7910	1505 Robert	Sewer line backed up and sewage flooded into basement. Travelers pd $4,366.29 to claimant. Rmbursed Travelers for deductible.
3/23/2009	A6N1769	533 Prospect	Sewer line backed up into basement. Ins paid $400.00. Pd $400 deductible to Travelers.

[a] Description of the insurance claim was taken verbatim from the insurance claim information provided by the City.

C. Rain Gages

The City uses two rain gages to monitor precipitation events. The rain gage at the Stevens Avenue Pump Station is owned and operated by the City, while the rain gage at the City's Conestoga Water Treatment Facility is owned and operated by the National Oceanic and Atmospheric Administration (NOAA).

D. Sewer System Mapping

The City has developed a geographic information system (GIS) mapping database for its collection system. The GIS was based on historical maps of the sewer system, as-builts, and some geographic positioning system (GPS) data. City staff explained that the GIS database is consistently updated as issues are observed in the field. According to the City's Wastewater Projects Manager, the City has a map book of the sewer system that was developed during the 1970s. Copies of the map book are kept in the trucks of the maintenance staff for reference while in the field.

V. INFORMATION OBTAINED AND REQUESTED DURING THE INSPECTION

During the inspection, the EPA Inspection Team obtained several datasets from the City and requested several additional datasets. Tables 4 and 5 summarize the information that was obtained, as well as the information that was requested and the status of the requests. Note that all of the information obtained by the EPA Inspection Team was in hard copy format.

Table 4. Information Obtained by EPA Inspection Team during Inspection

Description of Dataset
"City of Lancaster Organizational Chart" (department and bureau level detail)
"AWWTP Overall Process Flow Schematic"
"Schematic of Wastewater and Sludge Flow"
"Bureau of Wastewater Operations Performance Measures – M" for June 2011 and July 2011
Blank example of sewer maintenance and WWTP work order pink slip
SCADA screenshots: (1) North Pump Station screen, (2) AWWTP South Train flow settings screen, (3) AWWTP South Train flow to primary clarifiers, (4) overall flow meters screen for pump stations and AWWTP, and (5) CSO flow meters screen
"Standard Operating Procedures" for WWTP – includes wet weather operations
"Lancaster Municipal Partners Regional Sewer System Schematic" – 1/24/2011 version and 2/3/2011 version
AWWTP operations logbook for 8/28/2011 to 9/7/2011
AWWTP daily process control logs for 8/27/2011 to 9/6/2011
Lancaster Municipal Authority Combined Sewer Overflow Plan, Final Long-term Control Plan, September 1998
City of Lancaster Amended CSO Long Term Control Plan, October 2010 Status Report
Insurance claims submitted to the City from May 2077 to September 2011
"Service Calls 'Collections'" Sheets for January 2011 to February 2011
Copies of eight work orders for primary clarifiers at the WWTP
"Sewer Maintenance, Daily City Pumping Station Inspection Reports" for August 2, 2011, and August 28, 2011
Hot spots sewer cleaning list
"Collection System Inlet Cleaning Log" for various dates from 2005 to 2011
City's IPP permit and fact sheet for the Lancaster Oil Company, Inc.
Example of letter sent to SIUs regarding minimizing discharges during wet weather
SIU response letters to the City's letter regarding minimizing discharges during wet weather

Table 5. Information Requested by EPA Inspection Team during Inspection and Current Status of Requests

Description of Dataset	Status of Request (as of 12/20/2011)	Requested Format of Information
Pump station information sheets from the City's Wastewater Project Manager	Not received	Electronic or hard copy
Pump station information sheets from the City's Electrical/Mechanics Supervisor	Not received	Electronic or hard copy
North Treatment Train primary clarifier work orders for 2011	Not received	Electronic or hard copy
Access database for pump station equipment	Not received	Electronic copy
Access database for WWTP equipment	Not received	Electronic copy
Works orders o North Pump Station • Grit removal system • Rag/cloth removal o Clay Street grit chamber o Grit chamber which supports the Engleside sewershed o North Treatment Train • Primary clarifier preventive maintenance and corrective maintenance work orders o Vactor/jet truck • O&M records	Not received	Electronic or hard copy
SCADA records and data o WWTP flows o Pump station flows o CSO flows	Not received	Electronic copy
Summary of actions taken against Lancaster County Prison regarding debris discharges • Confirm flows from prison are directed to the North Treatment Train	Not received	Electronic or hard copy
Identification of to which treatment train (i.e., North or South) the SIU flows are directed	Not received	Electronic or hard copy

VI. ITEMS FOR POTENTIAL DISCUSSION AND INFORMATION REQUEST

Because of the weather-driven shortening of the inspection activity, the EPA Inspection Team has identified items that could be discussed with the City and information that could be requested to further develop the issues identified in this inspection report. Table 6 below provides a list of this information.

Table 6. Items for Potential Discussion and Information Request

Description of Discussion or Dataset
Total pumping capacity which can be supported by the backup power generator for the City's North Pump Station and Grofftown Pump Station and theoretical maximum pumping capacity of the pump stations with full power
WWTP operations logs for time period when preventive maintenance and corrective maintenance was being performed on the North Treatment Train primary clarifiers
Documentation of the occurrence and reporting of DWOs in the City's service area during the past five years
Summary of solids and floatables controls installed in the CSS and for CSOs
Summary of pollution prevention practices implemented within the City's CSS service area
Discussion with the City regarding precision of flow meters on CSO outfalls and subsequent identification of data to be requested